UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

October 20, 2003

In Reply Refer To:
8100 (240)P

EMS TRANSMISSION 10/22/2003
Instruction Memorandum No. 2004-020
Expires: 09/30/2005

To: All Field Officials

From: Assistant Director, Renewable Resources & Planning

Subject: Guidance for Recording Cultural and Paleontological Resource Locations for the Bureau of Land Management (BLM) using Global Positioning System (GPS) Technology
DD: 04/01/2004

Program Areas: Cultural and Paleontological Resources

Purpose: The purpose of this guidance is to provide a minimum set of requirements for recording cultural and paleontological resource locations for the BLM using GPS technology. The GPS has become a major tool for Geographic Information System (GIS) and traditional mapping applications. The use of GPS technology to record all site locations for the BLM shall be required within six months from issuance of this Instruction Memorandum.

The main objective of this guidance is to improve the overall reliability of site location information recorded by field archaeologists, paleontologists, and other specialists working within the BLM or working on lands administered by the BLM, including contractors; and support the

standardization and expansion of GIS applications for cultural and paleontological resource management.

Policy and Action: This guidance is intended to produce overall cultural and paleontological resource location data with a mean error of +/-12.5 meters or less, at a 95 percent confidence level. The mean error requirement is consistent with the National Map Accuracy Standard for 1:24,000 scale quadrangles and Federal Geographic Data Committee (FGDC) reporting requirements. This accuracy can be achieved with a variety of contemporary GPS equipment. Appropriate equipment is defined as GPS technology that meets the accuracy standard.

Cultural resources shall be located by reporting a minimum of one GPS-observed coordinate taken in the approximate estimated visible center (centroid) of the resource. The centroid need not be perfectly central to a site, but it must lie in the site's approximate center for map-plotting purposes. Multiple coordinates shall be used to define the approximate centerline of a linear resource (e.g. trail), if field judgment suggests that a single centroid is insufficient to record its location. More points, lines or polygons may be taken for other mapping purposes, including recording project area boundaries, site datums or markers, or internal attributes. Applicability of this standard for recording isolated finds shall be a state-level decision.

Paleontological resources shall be located according to the guidelines set forth in the BLM Handbook H-8270-1, General Procedural Guidance For Paleontological Resource Management, Ch. II A(4) and Ch. IV P(1) and expressed in Universal Transverse Mercator (UTM) North American Datum 1983 (NAD83) coordinates. Points may be used to identify discreet sites or isolates; lines or polygons may be used to delineate site or project boundaries.

Archaeological resource locations shall be reported in an appropriate, identified, coordinate system. The BLM's standard for coordinates is Universal Transverse Mercator, North American Datum 1983 (NAD83); whenever possible, coordinates should be reported using the NAD83

values. However, standards may differ between States and in collaboration with State historic preservation offices; consequently, all reported coordinates must clearly identify the coordinate system used.

In situations where GPS observations are not practical or possible due to geography, vegetation, satellite availability, or the presence of hazardous materials, the recorder should locate the resource using GPS offset equipment and capabilities, map coordinates, or a combination of GPS and other techniques. Such non-GPS methods must be described in the site or project area record.

The GPS observations will be reported on the appropriate part of a resource recording form, in the narrative description of the resource, or both, and include the following information:

- The UTM coordinates with the UTM zone should be reported. For all coordinates, the datum reference must be reported.
- The coordinate system for observations should be recorded in an obvious way (e.g. "UTM Zone 10 NAD83 centroid coordinate: N4986000 E302000 meters")
- If the error terms for a given coordinate are known, then the probable error must also be recorded in narrative (e.g., "GPS observations were differentially processed to an average error of less than 5m root mean standard deviation [RMS]").
- Receiver type, correction status, length of observation and number of observation points, position dilution of precision (PDOP), and horizontal error estimates must be recorded with the location whenever GPS equipment and software provides such information.
- Discrepancies between GPS locations and USGS quadrangle locations should be noted on the site record. Because GPS locations are mathematically precise coordinates, a point plotted from GPS may appear to be in an incorrect location on a USGS quadrangle.

This is a minimum standard and should not be used to lessen any applicable State, agency or Federal standard or reduce site location accuracy from conventional mapping methods. There will be situations where more

accurate location information is desirable, or required. For instance, State Offices may apply more stringent standards for intra-site mapping, excavation unit and datum locations. In all instances, the most accurate and capable equipment available shall be used to meet the needs of the types of data that are being recorded, even if it exceeds the accuracy suggested in this guidance. Appropriate GPS experts within Washington Office, National Centers, State and Field Offices should be consulted as needed.

Timeframe: This minimum requirement for recording cultural and paleontological resource locations for BLM using GPS technology is in effect on April 1, 2004.

Contact: Please contact either Marilyn Nickels, at (202) 452-0331, or Linda Clark, at (208) 756-5460 with any questions.

Signed by:	Authenticated by:
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